

# Case Presentation



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# History

- Female patient, 26 years old, from Kafr EL sheikh.
  - Presented 1month ago after having cesarean section for her second baby ( 3 days after labour) by :
    - Fever.
    - Vomiting.
    - Jaundice.
    - bilateral lower limbs edema.
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**The condition started 3 days after labour by fever and received unknown antibiotics by the history of her relatives .**

**Then jaundice , vomiting and bilateral pitting LLs edema begin to appear.**

**The obstetrician asked for renal and liver functions and was consulted by **Prof. Dr Kamal Okasha** .**

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- **Past history of abortion of 1st pregnancy at 2nd month.**
  - **G3P2A1L2.**
  - **No past history of chronic illnesses: DM, HTN or CKD before presentation.**
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# Examination

- **Clinical examination** at that time:
  - She was conscious.
  - Bilateral consonating crepitations, mild to moderate bilateral lower limbs edema and few purpuric spots.
  - Her cesarean scar was clean.
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- **Vital signs:**
  - Blood pressure= **120/80** mmHg
  - Pulse= **95** b/m, regular
  - Temp= **38.8** °C
  - RR= 22 c/m
  - **Urine output:** oliguric.
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# Investigations

CBC	
Hb	7.8 g/dL (microcytic hypochromic)
Platelets count	50.000/ cmm
WBCs	28.000/cmm, 70% segmented neutrophil, lymphocytes 6%
Retic.	2%

## Renal profile

S. Cr	3.6→5.7 mg/dL
B. Urea	102→185 mg/dL
eGFR (MDRD-4)	17 ml/min/1.73m <sup>2</sup>
Urinalysis	<ul style="list-style-type: none"><li>- Pus cells: 18-20/HPF</li><li>- RBCs: 48-50/HPF</li><li>- Albumin: +++</li></ul>



## ABG and Electrolytes

pH	7.23
PCO2	17 mmHg
PO2	130 mmHg
HCO3	7 mmol/L
O2 sat.	98.2 %
Na	137 mEq/L
K	3.7 mEq/L

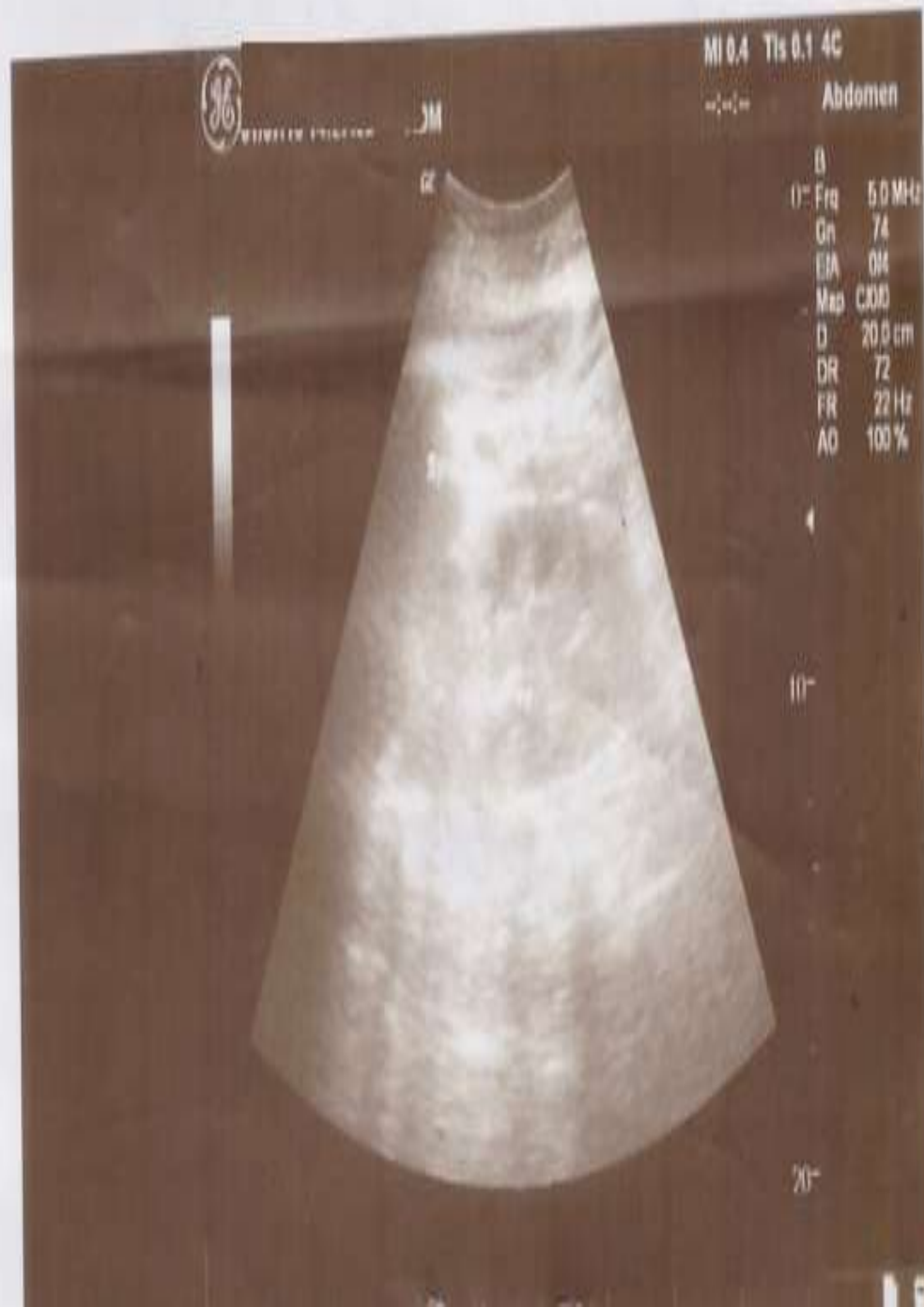
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<b>Liver profile:</b> S.Bilirubin  ALT AST S. Albumin Alkaline phosphatase	7.47 mg/dL , direct bilirubin 5.26 mg/dl 162→ 214 U/L 248→328 U/L 3.2 g/dL 143 U/L
<b>PA</b> <b>INR</b> <b>PTT</b>	94 % 1.08 54 sec
<b>ESR</b>	1st h= 18 mm/hr 2nd h= 50 mm/hr
<b>LDH</b>	1786 U/l
<b>CRP</b>	50 mg/l
<b>Virology ( HCV antibodies, HBs antigen and HIV )</b>	negative




## **Abdominopelvic US**

- **Average sized both kidneys with increased parenchymal echogenecity and loss of cortico-medullary differentiation( bilateral grade III).**
  - **Mild ascities.**
  - **Bilateral minimal pleural effusion.**
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- She received 24 units of platelets, 2 units of plasma , imipenem , Linezolid and diuretics .
  - with rising creatinine and metabolic acidosis two sessions of haemodialysis were done .
  - After 2 days she had disturbed conscious level and She received 3gm of solumedrol.
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- She was transferred to our hospital (2 days after having disturbed conscious level).
  - **Clinical** examination:
  - Disturbed conscious level .
  - **Vital signs:**
  - Blood pressure= **110/80** mmHg.
  - Pulse= **105** b/m, regular.
  - Temp = **39** °C.
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- **Head and Neck** :oral fungal infections and herpes simplex.
- **CVP** : 7 cm H<sub>2</sub>O.
- **Chest auscultation**: No crepitations but decreased air entry bilaterally mainly on the left side.
- Generalized abdominal tenderness.
- Bilateral pitting lower limbs edema (mild to moderate) .
- Twitches in the thigh muscles.

- **MRI brain** was done showing multiple areas of brain infarctions.
  - **Hematological consultation** was done and asked for blood film and plasma pheresis was started , one session was done.
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- **After 1 day** she developed haemetamesis and melena.
  - We **continue** on imipenem, Teicoplanin and proton pump were added also she received blood transfusion with good hydration to correct the hypovolemia and Linezolid was stopped .
  - Generalized tonic clonic convulsions appeared .
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## Summary

- Female 26 years old, with no past history except for abortion G3P2A1L2.
- Developed fever after labour and received antibiotics.
- vomiting ,jaundice, lower limbs edema developed .
- elevated liver enzymes ,anemia with elevated LDH, and low platelets count.
- Rising creatinine , oliguria and haemodialysis was started.
- Disturbed conscious level with no focal deficit .
- Serositis and fits.



- **What is the differential diagnosis ??**





- **Differential Diagnosis:**
  - **TMA ( HELLP,TTP).**
  - **Lupus cereberitis.**
  - **Uremia.**
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- **What is the next step??**





- **Neurological consultation showed no localized neurological deficit but slight generalized muscle weakness and the infarction is watershed infarction .**
  - **follow up of the arterial blood gases ,CBC , blood urea ,serum creatinine , liver functions and LDH was done.**
  - **Blood film and urine culture were done.**
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- Serum potassium, calcium, phosphorous , PTH,CK were done.
  - ANA, Anti dsDNA ,C3 ,C4, ANCA P and C.
  - CSF examination and Echocardiography were asked (fever) .
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<b>Hb</b>	9.8→11.7 g/dL
<b>Platelets count</b>	86.000 → 102.000/ cmm
<b>WBCs</b>	10.000/ cmm,70% segmented neutrophil, lymphocytes 20%
<b>Retic.</b>	1.8%
<b>Blood film</b>	No shictocytes

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<b>S. Cr</b>	6.8 mg/dL
<b>B. Urea</b>	202 mg/dL
<b>Urine culture</b>	Gram negative bacilli (enterobacter aerogenes) sensitive only to colistin
<b>Another urinalysis</b>	Pus cells: 4-6/HPF RBCs: 70-80/HPF Albumin: trace



## ABG and Electrolytes

pH	7.45
PCO <sub>2</sub>	30 mmHg
PO <sub>2</sub>	130 mmHg
HCO <sub>3</sub>	21 mmol/L
O <sub>2</sub> sat.	94.7%
Na	137 mEq/L
K	2.8 mEq/L
Ionized Calcium	0.65→0.96 mmol/L
Phosphorus	5.9 mg/dL

<b>Liver profile:</b>	
<b>S.Bilirubin</b>	<b>1.9 mg/dL , direct bilirubin</b> <b>1.7 mg/dl</b>
<b>ALT</b>	<b>24 U/L</b>
<b>AST</b>	<b>49 U/L</b>
<b>PA</b>	<b>100 %</b>
<b>INR</b>	<b>1</b>
<b>PTT</b>	<b>36 sec</b>
<b>LDH</b>	<b>3341 U/l</b>
<b>CRP</b>	<b>88 mg/l</b>

PTH	12.5 pg/ml
Haptoglobin	consumed Less than 6 mg/dL (30-200)
CK	347 u/l ( 24-190)
ANA	Negative
Anti dsDNA	Negative
C3	99 mg/dL (90-180)
C4	20 mg/dL (10-40)
ANCA P , C	Negative
Anti cardiolipin IgM	positive
lupus anticoagulants and anti B 2 glycoprotein	Negative
CSF	No abnormality
TSH, Anti-thyrogloblin and anti thyro peroxidase Ab	Normal
Echo	Mildly dilated both atria, EF 68%,diastolic dysfunction , mild tricusped regurge with ESPAP 35 mmHg. mild pericardial effusion



- **What is the next step??**



- **Myoglobin** in the urine :

Myoglobin in urine	989 ng/ml(25-58)
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- **Renal biopsy** was done:
  - After 1 day there was a left loin swelling **U/S** showed edematous skin , subcutaneous layers and muscle layers of the left loin region.
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# **Histopathology**

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**GROSS:**

Three cores of needle biopsy, grayish brown in color. Totally processed.  
Serial sections were stained with H&E, Masson trichrome and PAS stains.  
Serial sections on charged slides were treated for anti IgA, IgG, IgM and C3 antibodies.

**MICROSCOPIC:**

Light Microscopy:

Examination of serial sections prepared from the biopsy received revealed renal corticomedullary and medullary tissue.  
Two glomeruli were seen, in all serial sections examined, out of which none was obsolescent. Both appeared unremarkable.  
Tubules showed mild injury. Medullary tubules showed numerous large and globular reddish brown pigment casts which gave bright red colour in trichrome stains.  
Interstitialium was unremarkable.  
No blood vessels were noted.

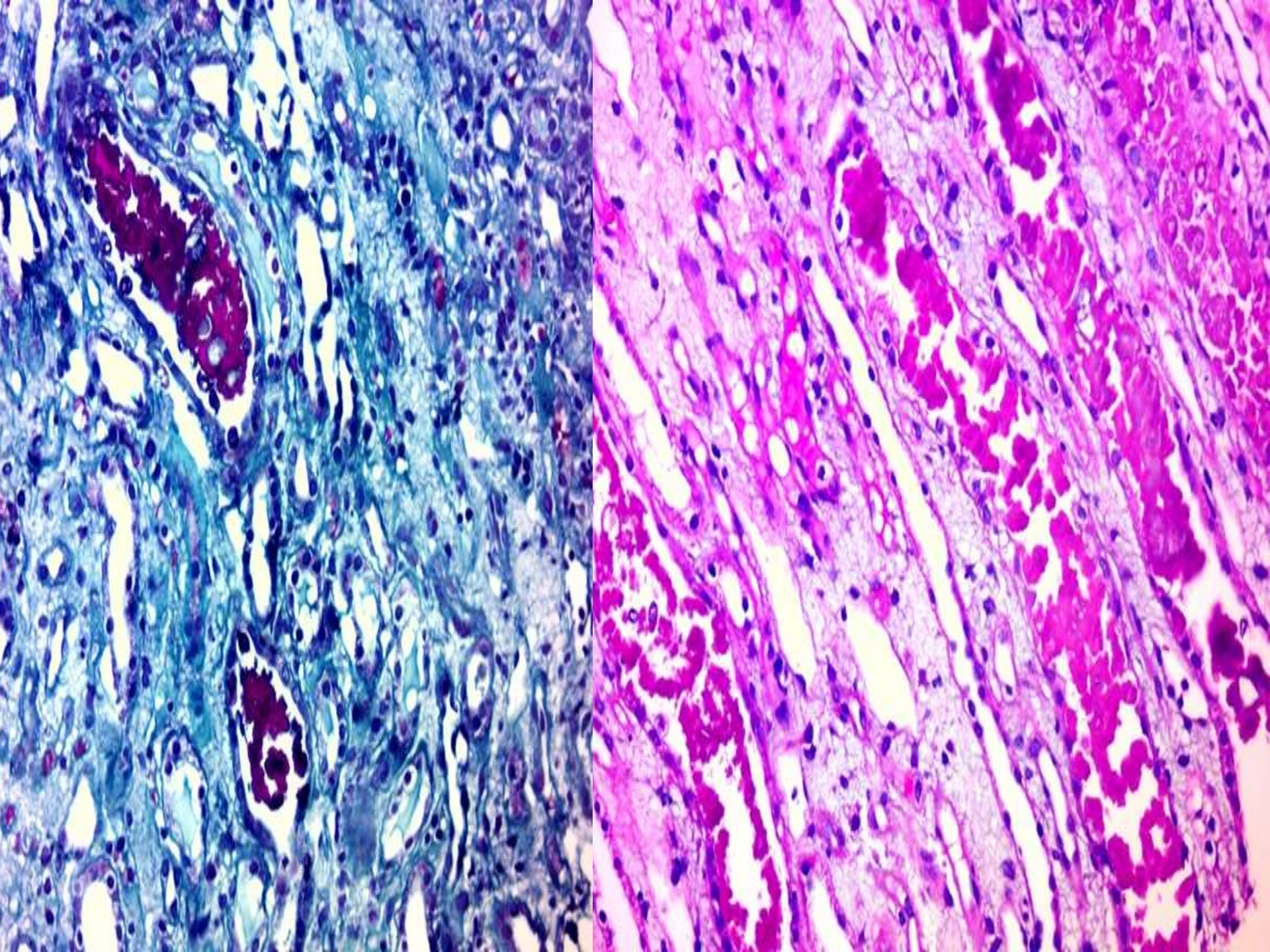
Immunohistochemistry:

Examination revealed    IgA: Negative      IgG: Negative  
   IgM: Negative      C3: Negative  
   Kappa: Not requested    Lambda: Not requested

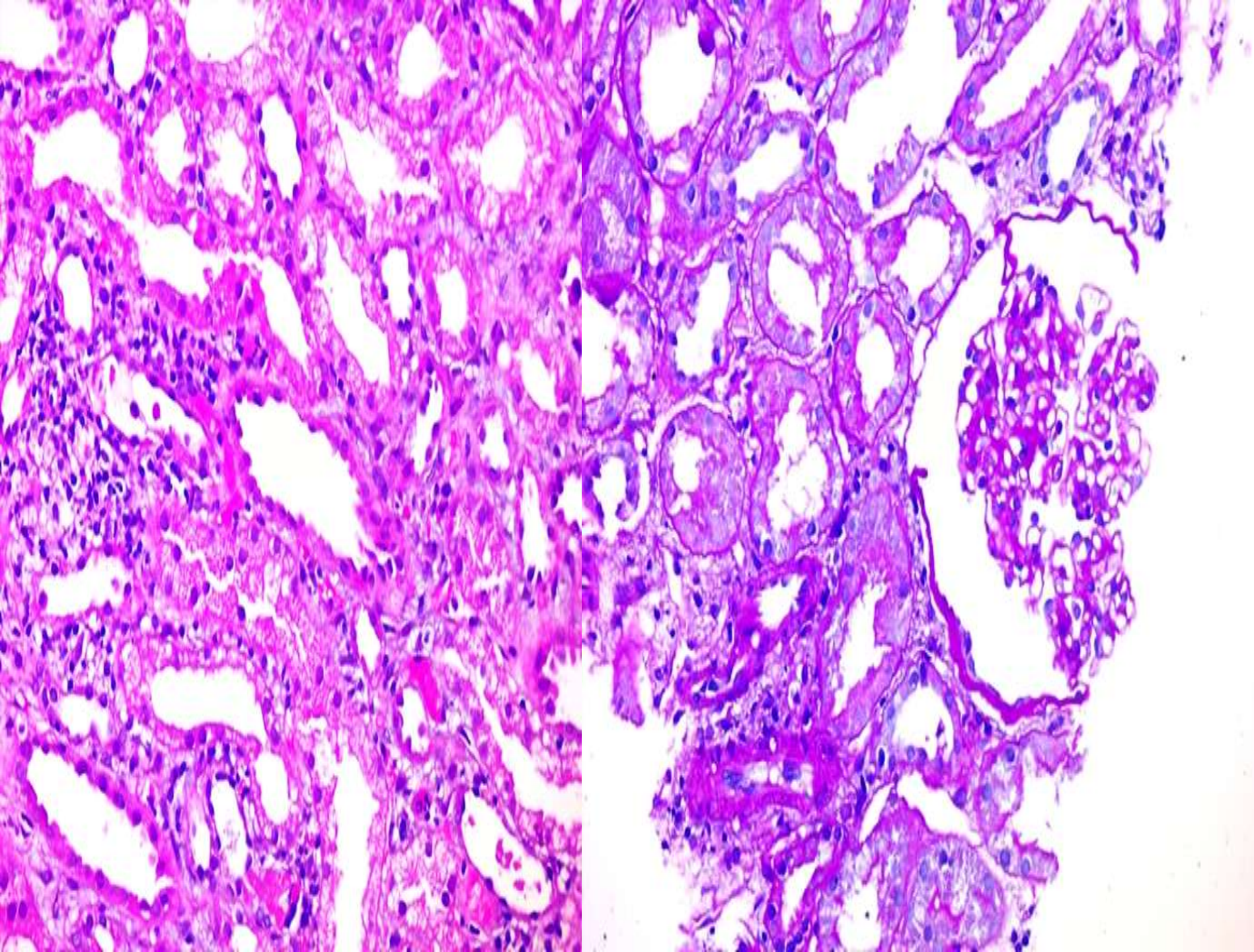
**Renal Biopsy:**

**Light Microscopic and Immunoperoxidase Findings are Compatible with:**  
**Inadequate Biopsy for Proper Evaluation Suggestive of Myoglobinric Injury**











- **Is it rhabdomyolysis ?**
  - **Is there a relation between hypoparathyroidism and rhabdomyolysis ?**
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18 days after presentation there was improvement in renal functions and dialysis was stopped.

Hb	10.9 g/dL
Platelets count	387.000/ cmm
WBCs	9.400/ cmm
S. Cr	1.7 →0.9 mg/dL
B. Urea	43→23 mg/dL
LDH	553 U/l
S.Bilirubin	0.6 mg/dL , direct bilirubin 0.4 mg/dl
ALT	10 U/L
AST	19 U/L
Serum albumin	3.3 gm/dl

<b>CK</b>	<b>34</b> u/l
<b>sodium</b>	<b>132</b> mmol/l
<b>potassium</b>	<b>3.83</b> mmol/l
<b>magnesium</b>	<b>1.7</b> mg/dl
<b>calcium</b>	<b>0.97</b> mmol/l
<b>Phosphorus</b>	<b>3.5</b> mg/dL
<b>PTH</b>	<b>14.2</b> pg/ml
<b>U/S</b>	average sized both kidneys with normal echopattern to grade I nephropathy.
<b>Echo</b>	global hypokinesia with EF 50%, calcifications on the papillary muscle.





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- In spite of her initial normal blood pressure the patient developed hypertension now and controlled by carvedilol .
  - And there is recurrent hypocalcaemia.
  - Another renal biopsy was done.
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## The second biopsy showed:

### GROSS:

Two cores of needle biopsy, grayish brown in color. Totally processed.  
Serial sections were stained with H&E, Masson trichrome and PAS stains.

### MICROSCOPIC:

#### Light Microscopy:

Examination of serial sections prepared from the biopsy received revealed renal cortical tissue, 80% of it necrotic.

Forty-six glomeruli were seen, in all serial sections examined, out of which none was obsolescent. Around 85% of the glomeruli (40) were necrotic with residual intracapillary large fibrin thrombi. One of the viable glomeruli showed a hilar thrombus. The rest were unremarkable.

Tubules showed moderate injury away from the necrotic areas.

Interstitium showed mild fibrosis. (10% of submitted tissue) and extensive hemorrhage in necrotic areas.

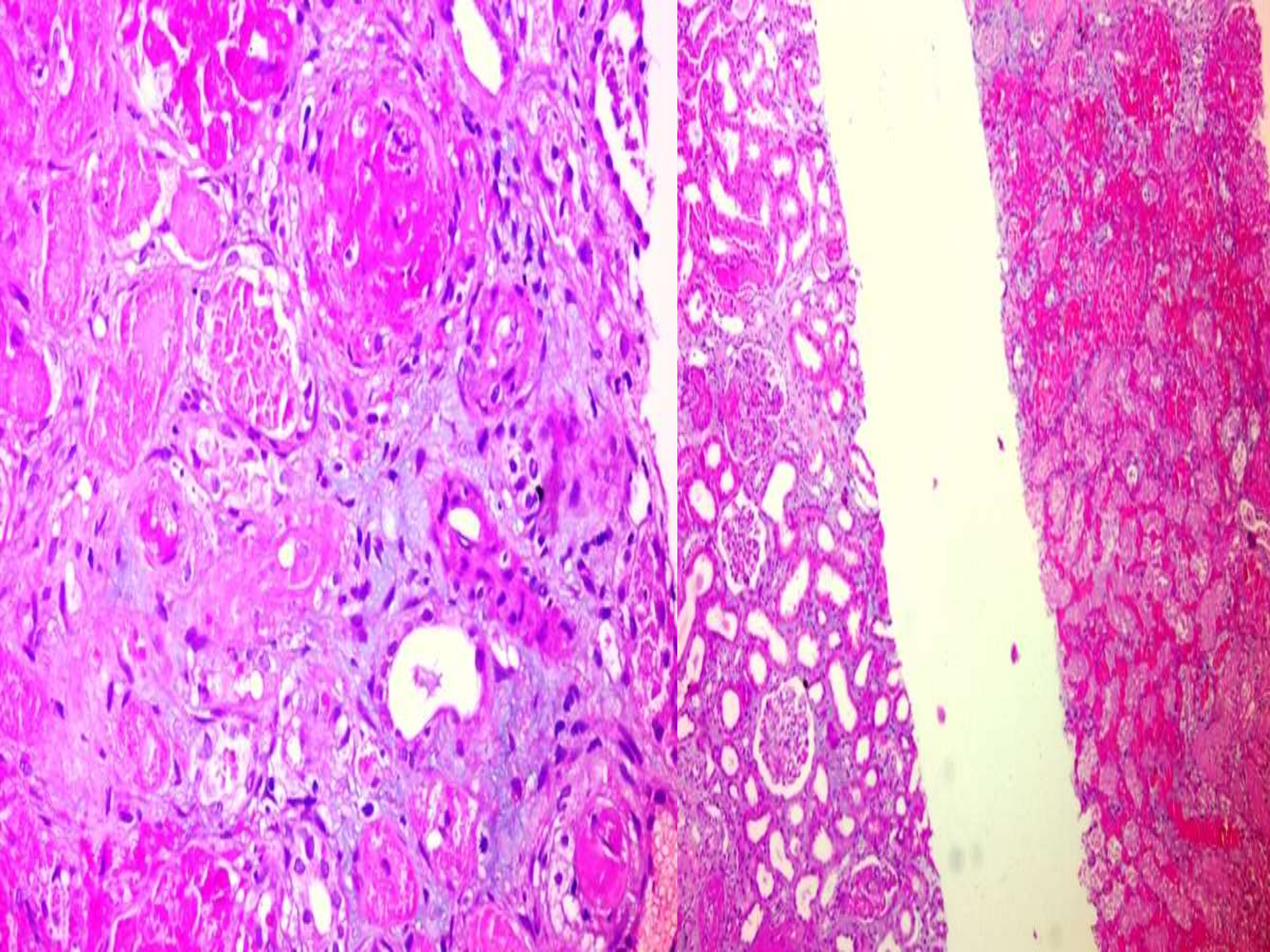
All arteries and arterioles noted were within the necrotic segments and all of them showed occlusion by persistent large fibrin thrombi.

#### ***Renal Biopsy;***

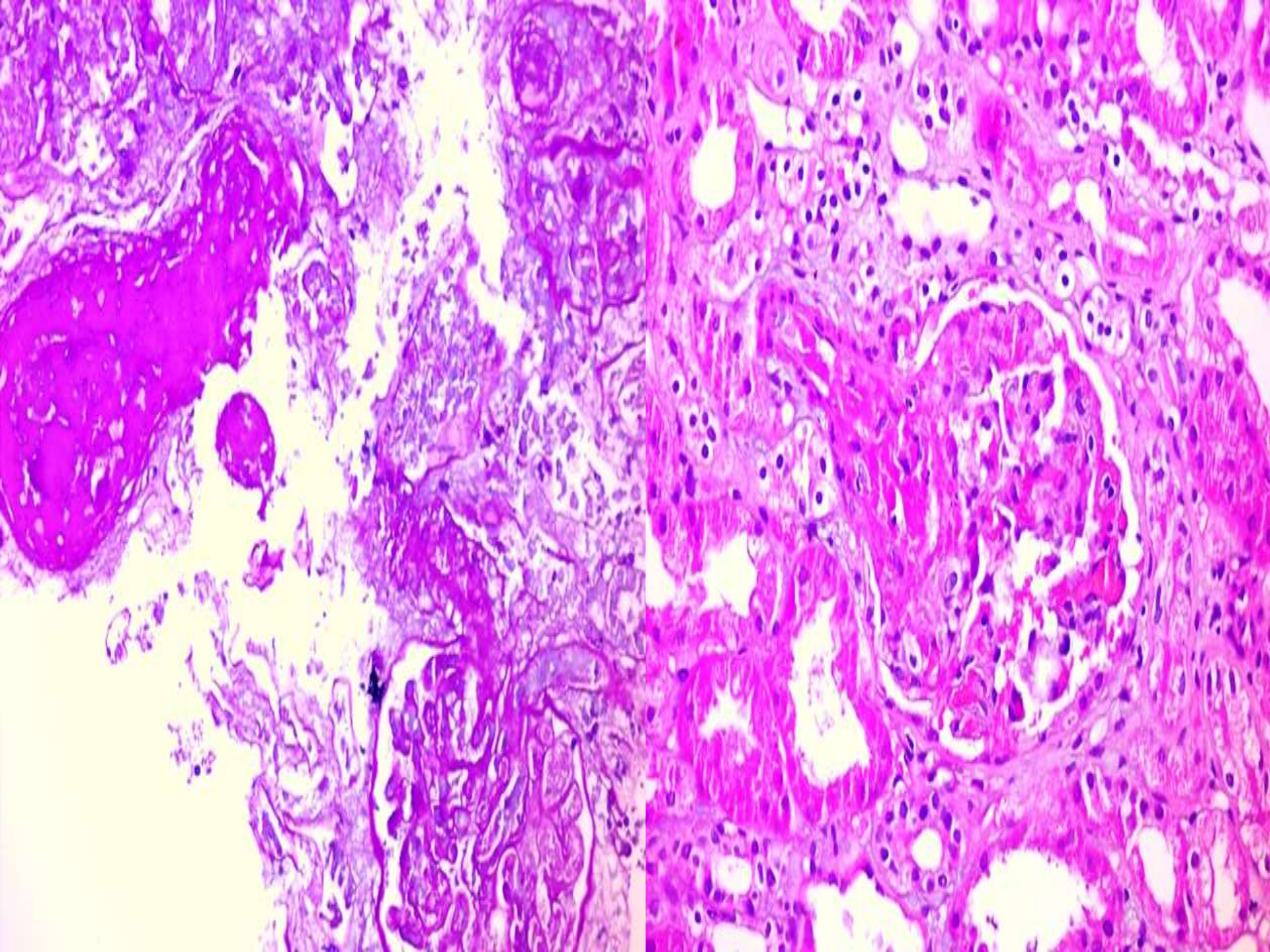
#### ***Light Microscopic Findings are Compatible with:***

**Thrombotic Microangiopathy; Acute Phase with Cortical Necrosis (80%)**

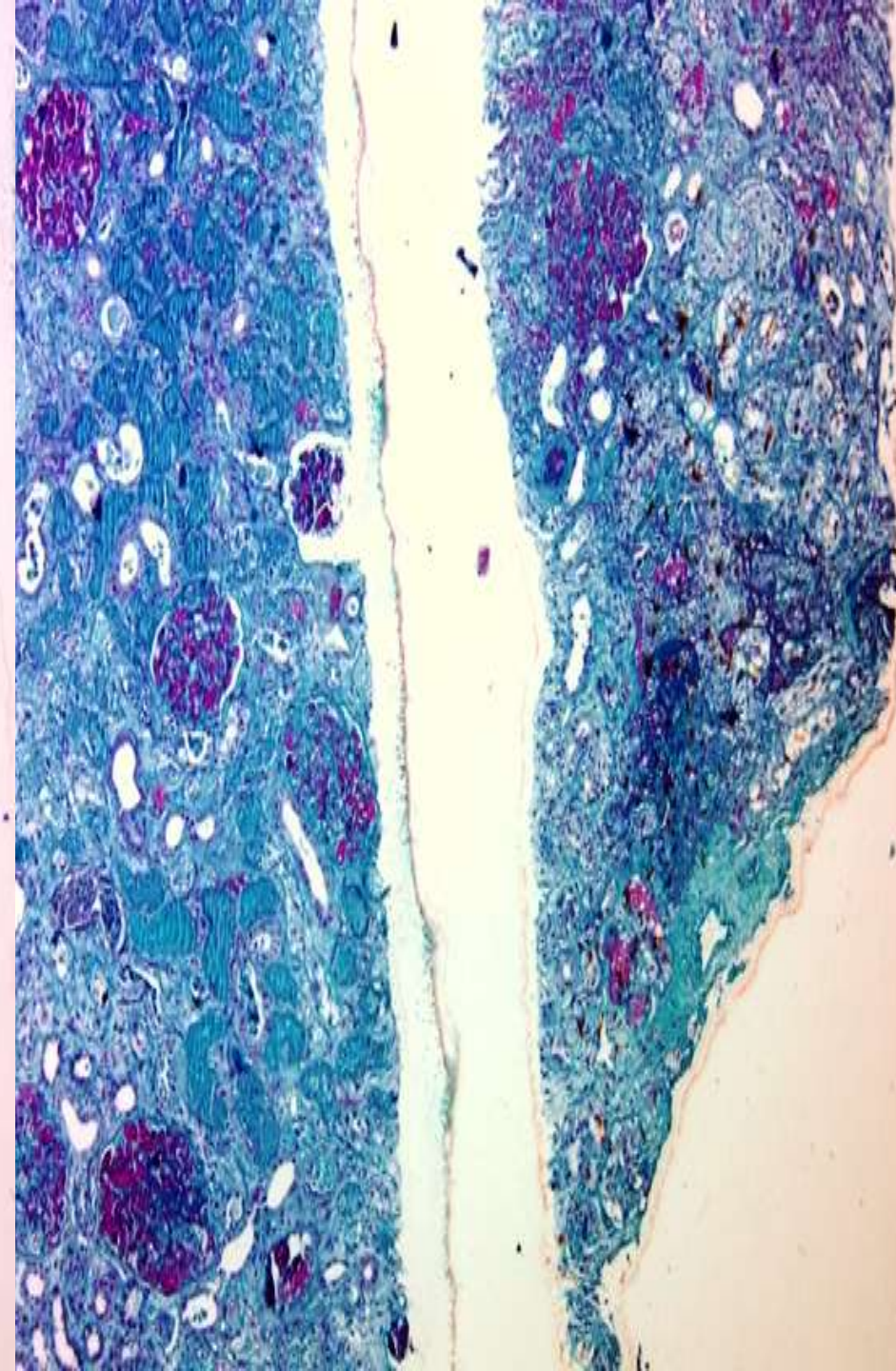
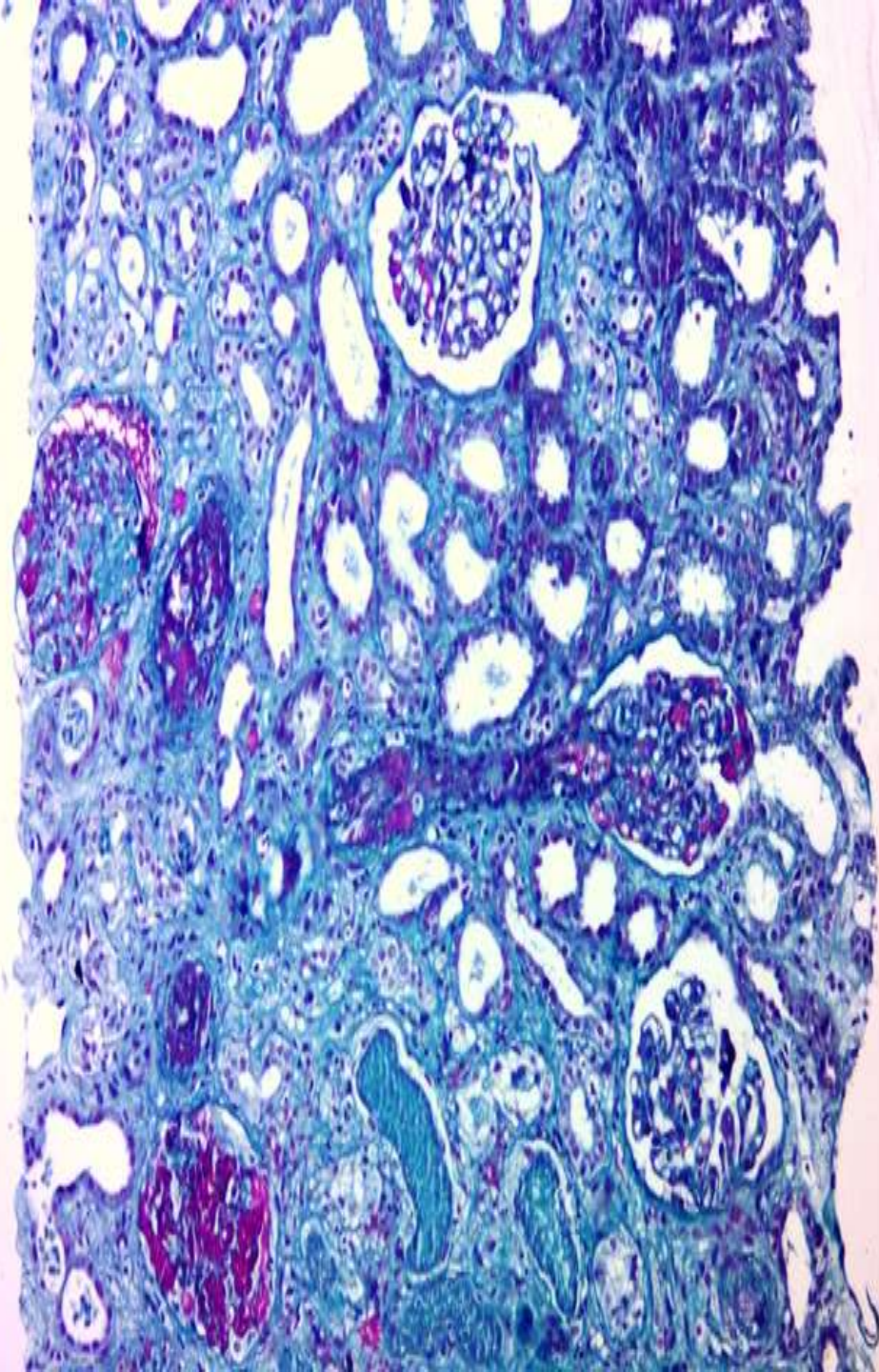














- The patient developed fresh bleeding per rectum, colonoscopy was done and showed multiple ulcers and picture suggestive for ischemic colitis , multiple biopsies were taken for histopathological examination
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- **What is the differential diagnosis of this case???**



- What is the cause of rhabdomyolysis in this case?
  - (thrombotic microangiopathy , hypoparathyroidism and hypocalcaemia ,sepsis , fever , hypokalemia )
  - Is it HELLP with TMA ? Haemoglobinuria??
  - IS it both HELLP with TMA and rhabdomyolysis ?
  - Is it post partum eclampsia?
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## *Case Report*

# **A Case of Primary Hypoparathyroidism Presenting with Acute Kidney Injury Secondary to Rhabdomyolysis**

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# Thrombotic Microangiopathy Presenting As Fulminating Rhabdomyolysis with Multiorgan Dysfunction

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**Table 2.** Known Thrombotic Microangiopathic Syndromes\*

Syndrome	Target Organ	Typical Clinical Features
<b>Classic manifestations</b>		
HELLP syndrome	Liver	Elevation of liver enzyme levels in association with pregnancy
Hemolytic uremic syndrome	Kidney	Renal failure
Thrombotic thrombocytopenic purpura	Brain	Central nervous system dysfunction
<b>Atypical manifestations</b>		
Acute respiratory distress syndrome	Lung	Respiratory distress
Hepatitis	Liver	Elevation of liver enzyme levels
Myocardial infarction	Heart	Chest pain, increased cardiac enzyme levels
Nonocclusive mesenteric ischemia	Intestine	Abdominal pain, nonthrombotic gangrene of the intestines
Pancreatitis	Pancreas	Abdominal pain, elevation of serum amylase and lipase levels
Peripheral digit ischemic syndrome	Digit	Gangrene, loss of fingers and toes
Retinal detachment	Eye	Visual loss or changes
Rhabdomyolysis	Muscle	Myalgia, elevation of creatine kinase level
Skin gangrene	Skin	Gangrene and ulcers

# TAKE HOME MESSAGE

- ❖ Thrombotic microangiopathy can be a cause of rhabdomyolysis.
  - ❖ Hypoparathyroidism can be a cause of rhabdomyolysis and treatment of hypocalcaemia may take a long time.
  - ❖ Don't miss correction of hypomagnesaemia to correct resistant hypocalcaemia.
  - ❖ Don't miss thrombotic microangiopathy in postpartum renal failure even if there is no suggestive history.
  - ❖ One-third of women with late postpartum eclampsia have no prior history of hypertension, Proteinuria or edema.
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*Thank You*